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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,829	10/06/2000	David O'Connell	920673-907240	2651

23644 7590 09/26/2007

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EXAMINER	
MEW, KEVIN D	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
09/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/680,829	O'CONNELL ET AL.	
	Examiner	Art Unit	
	Kevin Mew	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *54* is/are allowed.

6)☒ Claim(s) *1-11,27-31,33-36,44-47 and 50-53* is/are rejected.

7)☒ Claim(s) *12-26 32 and 37-43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Response to Amendment

1. Applicant's Arguments/Remarks filed 6/18/2007 have been fully considered. Claims 48-49 have been cancelled by applicant, and claims 1-47 and 50-54 are currently pending.

2. Acknowledgement is made of the amended claim 53 with respect to the claim objections set forth in the previous Office action. The corrections are acceptable and the claim objections are now withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 7-11, 27-31, 33-36, 44-47, 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster et al. (USP 6,363,053) in view of Evslin et al. (USP 6,842,427).

Regarding claims 1 & 34, Schuster discloses a computer software and hardware product to perform a method of monitoring quality of service (collecting quality of service information from network traffic, see lines 21-22, col. 3, lines 38-44, col. 11 and abstract) in communications over a packet-based network between two points (in communications over a packet-based

network between source PC 166 and destination 192, see col. 7, lines 25-35 and Fig. 3), at least one of which is an endpoint (source PC 166, Fig. 3),

wherein said endpoint is a telecommunications device enabling a user to participate in a telecommunication session over the network (source PC 166 is the endpoint enabling a user to participate in a telecommunication session with the destination 192 over the network, Fig. 3);

the method comprising the steps of:

transmitting test packets across the network (transmitting test traffic from a source to a destination, see lines 24-25, col. 3) and monitoring transmission characteristics of said test packets (monitoring characteristics of the test traffic transmitted by the source and characteristics of the test traffic received by the destination, see lines 21-30, col. 3);

dynamically calculating from said transmission characteristics a measure of network performance (identifying quality of service information by comparing characteristics of the test traffic transmitted by the source and characteristics of the test traffic received by the destination, see lines 21-30, col. 3); and

Schuster does not explicitly show the telecommunication device is a telephony device involving in a telephony session and providing at said telecommunications device a dynamic indication of the network performance based on said calculation during said telecommunications session.

However, Evslin discloses voice traffic simulators at routers to transmit test voice packets as telephony calls from one router to another router in order to measure and compile network performance data of a network transmission path, such network performance data include jitter, packet loss and delay. Evslin further teaches a graphical display for displaying the results of the

network performance parameters compiled at the initial simulator (col. 3, lines 15-57 and Figs. 1 and 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the quality of service measuring method and system of Schuster with the teaching of Evslin such that the end-point telecommunications device of Schuster will be modified to transmit voice test packets during a telephony session and to display a graphical/dynamic indication of the measured network performance data.

The motivation to do so is to account for changing voice traffic patterns and conditions over the Internet in order to determine an optimal network route for providing a better quality of service for the voice traffic.

Regarding claims 2 & 35, Schuster discloses a computer software and hardware product to perform the method according to claims 1 and 34, respectively, wherein said transmission characteristics are selected from packet loss, transmission delay, and a combination thereof (QoS characteristics may consist of measurable attributes such as packet loss and latency, see lines 4-7, col.10).

Regarding claim 3, Schuster discloses a method according to claim 2, wherein said transmission characteristics include both packet loss and transmission delay (see lines 18-23, col. 12).

Regarding claim 4, Schuster discloses a method according to claim 1, wherein the indication of the network performance is provided by means of a visual display associated with the endpoint (see lines 5-8, col. 15).

Regarding claim 7, Schuster discloses a method according to claim 1, wherein said test packets include a first series of test packets which issue from a source location to a destination location (transmitting test traffic from a source port to an echo port, see lines 33-34, col. 3) and a second series of test packets which issue from said destination location to said source location in response to said first series of test packets (the echo port then transmits echo traffic back to the source port, wherein the echo traffic corresponds to the test traffic, see lines 35-38, col. 3), whereby said network characteristics may be monitored by comparing the first and second series of test packets (identifies quality of service information by comparing characteristics of the test traffic to characteristics of the echo traffic, see lines 38-41, col. 3).

Regarding claim 8, Schuster discloses a method according to claim 7, wherein the first series of test packets include local source timestamp information and wherein the second series of test packets include local destination timestamp information, the difference between said local source timestamp information and local destination timestamp information being used to calculate a delay characteristic of the network (a timestamp may be used to accurately record the time of transmission and receipt if a packet transmission count is taken at the source and a packet count is taken at the source if the traffic is returned from an echo port, lines 29-37, col. 11).

Regarding claim 9, Schuster discloses a method according to claim 8, wherein the delay characteristic is the absolute delay in echo-free connections (Ta) between the source and destination locations over the network (test traffic is transmitted by a source to the unused port, see lines 36-64, col. 10).

Regarding claim 10, Schuster discloses a method according to claim 7, wherein a measure of packet loss is obtained by comparing the packets issued from the source location and the packets received back at the source location (packet loss can be measured by the number of packets received to the number of packets originally transmitted, see lines 18-20, col. 12 and 62-65, col. 13).

Regarding claim 11, Schuster discloses a method according to claim 9, wherein a measure of packet loss is obtained by comparing the packets issued from the source location and the packets received back at the source location (packet loss can be measured by the number of packets received to the number of packets originally transmitted, see lines 18-20, col. 12 and 62-65, col. 13).

Regarding claims 27 & 44, Schuster discloses computer software and hardware product to perform a method according to claims 1 & 34, respectively, wherein the step of providing a dynamic indication of the network performance includes providing, at the request of a user, an indication of one or more of said transmission characteristics (comparing measured quality of

service characteristics with the specified quality of service characteristics, thereby determining conformance to the service level agreement, see lines 5-9, col. 4 and lines 38-44, col. 11).

Regarding claim 28, Schuster discloses a method according to claim 27, wherein the request of the user is made by means of an input device associated with the endpoint and the indication is provided by means of a display device associated with the endpoint (see lines 1-8, col. 15 and lines 38-44, col. 11).

Regarding claims 29 & 45, Schuster discloses a computer software with instructions to execute a method according to claims 1 and 34, respectively, further comprising the step of logging the network transmission characteristics (collecting QoS characteristics, see lines 41-45, col. 9 and lines 38-44, col. 11).

Regarding claims 30 & 46, Schuster discloses a computer software with instructions to execute the method according to claims 1 & 34, respectively, further comprising the step of logging the results of said calculation (a report is generated to indicate a percentage by which an observed and identified QoS characteristic deviated from the QoS characteristic as specified in the SLA, see lines 30-38, col. 9, 23-26, 33-35, col. 10 and lines 38-44, col. 11).

Regarding claim 31, Schuster discloses a method according to claim 30, wherein the step of logging the results of said calculation occurs only when said results are within a

predetermined range (periods of non-compliance may be cumulatively measured, see lines 32-41, col. 12).

Regarding claims 33 & 47, Schuster discloses a method according to claims 1 & 34, respectively, further comprising the step of adjusting a billing record for a user in dependence on the results of said calculation (see lines 37-41, col. 12 and lines 38-44, col. 11).

Regarding claim 36, Schuster discloses a computer software and hardware product according to claim 35, wherein the transmission characteristics include the absolute delay in echo-free connections (Ta) between source and destination locations over the network (test traffic is transmitted by a source to the unused port, see lines 36-64, col. 10 and lines 38-44, col. 11 and abstract), obtained by comparing local timestamp information from source and destination locations on the network (a timestamp may be used to accurately record the time of transmission and receipt if a packet transmission count is taken at the source and a packet count is taken at the source if the traffic is returned from an echo port, lines 29-37, col. 11) and a measure of packet loss obtained by comparing the packets issued from the source location and the packets received back at the source location (packet loss can be measured by the number of packets received to the number of packets originally transmitted, see lines 18-20, col. 12 and 62-65, col. 13).

Regarding claim 50, Schuster discloses a system for monitoring quality of service in communications over a packet-based network (an apparatus for collecting quality of service

information from network traffic over a packet-based network, see lines 22-30, col. 3 and 38-44, col. 11 and abstract), comprising:

a source endpoint connected to the network via which a user may transmit communication signals over the network (a general purpose computer, connected to the network, transmits an IP header from a first network device, see lines 10-17, col. 4) wherein said endpoint is a telecommunication device enabling a user to participate in a telecommunication session over the network (source PC 166 is the endpoint enabling a user to participate in a telecommunication session with the destination 192 over the network, Fig. 3);

a test packet generator for transmitting test packets across the network a test packet receiver for receiving test packets from the network (the set of instructions cause the general purpose computer to transmit a first IP packet from a first network device to a second network device, see lines 14-17, col. 4);

a processor for measuring transmission characteristics of said test packets and for calculating from said transmission characteristics a measure of network performance (a comparator compares the measured quality of service characteristics with the specified quality service characteristics to determine conformance to the service level agreement, see lines 5-9, col. 4); and

Schuster does not explicitly show the telecommunication device is a telephony device involving in a telephony session and providing at said telecommunications device a dynamic indication of the network performance based on said calculation during said telecommunications session.

However, Evslin discloses voice traffic simulators at routers to transmit test voice packets as telephony calls from one router to another router in order to measure and compile network performance data of a network transmission path, such network performance data include jitter, packet loss and delay. Evslin further teaches a graphical display for displaying the results of the network performance parameters compiled at the initial simulator (col. 3, lines 15-57 and Figs. 1 and 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the quality of service measuring method and system of Schuster with the teaching of Evslin such that the end-point telecommunications device of Schuster will be modified to transmit voice test packets during a telephony session and to display a graphical/dynamic indication of the measured network performance data.

The motivation to do so is to account for changing voice traffic patterns and conditions over the Internet in order to determine an optimal network route for providing a better quality of service for the voice traffic.

Regarding claim 51, Schuster discloses a system according to claim 50, wherein said test packet generator includes a timestamp generator for adding a local source timestamp to said test packets (see lines 29-44, col. 11).

Regarding claim 52, Schuster discloses a system according to claim 51, further comprising a destination endpoint with which said source endpoint is in communication over the network (see lines 29-38, col. 11), said destination endpoint having associated therewith: a test

packet receiver for receiving test packets from the network (an echo or unused port for returning test traffic to the source, see lines 29-38, col. 9); a timestamp generator for adding a local destination timestamp to said received test packets (see lines 29-44, col. 11); and

a test packet re-transmitter for re-transmitting said received test packets with said local destination timestamp back to their source (an echo or unused port for returning test traffic to the source, see lines 29-38, col. 9).

Regarding claim 53, Schuster discloses a system according to claim 52, further comprising a centralized time server in communication with the network for generating a standardized time and providing same to said source and destination endpoints (see lines 29-37, col. 11).

4. Claim 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster in view of Evslin, and in further view of Vaid et al. (USP 6,520,131).

Regarding claims 5 & 6, Schuster and Evslin discloses all the aspects of the claimed invention set forth in the rejection of claims, except fails to disclose the indication of the network performance is provided by means of an audio signal and a discrete signal emitted at the source endpoint when the value of the transmission characteristic passes a predetermined value.

However, Vaid discloses a method and apparatus for monitoring QoS in which alarms will be triggered when a QoS characteristic threshold is reached (see lines 23-55, col. 27 and Fig. 19).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the QoS monitoring apparatus of Schuster with the alarm portion of the GUI interface of QoS management tool of Vaid such that an aural signal will be generated to alert a transmission threshold is reached such as the QoS management tool taught by Vaid.

The motivation to do so is to provide an audible signal to signify that the threshold of a certain transmission characteristic has been reached because it will provide an instant alert to bring attention to the network administrator on what transmission characteristic creates a bottleneck on the network performance.

Response to Arguments

5. Applicant's arguments filed 6/18/2007 have been fully considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

6. Claim 54 is allowed.

7. Claims 12-26, 32, 37-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 12, a method according to claim 11, wherein the measure of packet loss and the identity of the communications codec being employed by the endpoint are used to calculate an equipment impairment factor (Ie).

In claim 32, a method according to claim 30, wherein the step of logging also includes logging the fact that a communications connection over the network has been lost.

In claim 37, a computer program product according to claim 36, wherein the measure of packet loss and the identity of the communications codec being employed by the endpoint are used to calculate an equipment impairment factor (Ie).

In claim 38, a method according to claim 14, wherein the delay impairment factor (Idd) is given by the formulae:

(i) for Ta < 100ms,

Idd = 0; and

(ii) for Ta => 100 ms,

$$Idd = 25* ((1+X^6)^{1/6} - 3* (1+ (X/3)^6)^{1/6} + 2)$$

Where $X = (\log(Ta/100))/\log(2)$

In claim 54, a method of monitoring quality of service in communications over a packet-based network between two points, at least one of which is an endpoint, comprising the steps of:

calculating from said measured difference the absolute delay in echo-free connections (Ta) between the source and destination locations over the network and thereby calculating a delay impairment factor.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CHI PHAM
SUPERVISORY PATENT EXAMINER 9/24/07

Kevin Mew
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